SBI3U Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Genetic Processes - Introduction**

It's important when learning new concepts in Biology (or anything!) to ***make connections with what we know already*** (from prior experience...either in class or outside) as well ***as understand the bigger context*** of the information. Both help us to be more engaged & interested in what we're learning, which will hopefully allow us to better understand & remember the information.

*First let's connect with some information you learned in Grade 10 Science:*

1. How many chromosomes (pieces of DNA) do human body cells have?

2. What is the process called when body cells divide?

3. *Why* do cells need to divide in the human body?

4. When body cells divide, is there a change in the genetic information (chromosomes)?

*Now let’s look at how organisms reproduce:*

5. Organisms that reproduce **asexually** make identical copies of themselves, usually using

mitosis & cells division. Organisms that reproduce **sexually** combine genetic information, usually

from 2 different parents, creating offspring that are genetically non-identical…to each other, and to

their parent(s).

-Give examples of organisms you think/know that reproduce **asexually**?

-Give examples of organisms you think/know that reproduce **sexually**?

6. What is genetic diversity? Why would it be beneficial for a species to have genetic diversity?

Which form of reproduction allows for greater genetic diversity?

*Let's talk about human reproduction now...*

7. First, some addition:

In mitosis: 1 body cell --> 1 body cell + 1 body cell

( \_\_\_ chromosomes) ( \_\_\_ chromosomes) ( \_\_\_ chromosomes)

In human reproduction:

1 sperm cell + 1 egg cell ---> 1 new body cell

( \_\_\_ chromosomes) ( \_\_\_ chromosomes) ( \_\_\_ chromosomes)

8. How many chromosomes must sperm & egg cells have? How do you think that happens?

*Now have a look at your textbook & make some connections with what we are going to learn:*

9. Compare mitosis (Figure 4, p.144-145) to meiosis (Figures 6a & b, p.154-155):

|  |  |  |
| --- | --- | --- |
|  | **mitosis** | **meiosis** |
| How many parent cells? |  |  |
| How many daughter cells? |  |  |
| Compare the parent cells to the daughter cells. (Do they have the same number of chromosomes? Do they have identical chromosomes?) |  |  |
| Compare the daughter cells to each other. (Do they have the same number of chromosomes? Do they have identical chromosomes?) |  |  |